

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Currently Amended) A band-gap reference circuit, comprising:
a band-gap reference unit comprising a plurality of transistors;
a buffer circuit electronically coupled with said band-gap reference unit; and
a ~~single component~~ voltage pull-up device ~~that is separate from said band-gap reference unit~~ electronically coupled between said band-gap reference unit and said buffer circuit, wherein said voltage pull-up device ~~acts to reduce a required supply voltage to maintain a band-gap reference voltage and wherein said voltage pull-up device~~ is implemented as a first transistor; and

a second transistor operable as an emitter follower for the emitters of said plurality of transistors, wherein the emitter of said second transistor is electrically coupled to said buffer circuit via said voltage pull-up device, wherein said second transistor and said voltage pull-up device in combination pull the VBE of said buffer circuit toward Vcc.

2. (Previously Presented) A band-gap reference circuit as described in Claim 1, wherein said band-gap reference circuit resides in an integrated circuit device.

3. (Previously Presented) A band-gap reference circuit as described in Claim 1, wherein said band-gap reference circuit is implemented in a silicon substrate.

4. (Currently Amended) A band-gap reference circuit as described in Claim 1, wherein said buffer circuit is implemented as a third transistor.

5-6. (Canceled).

7. (Currently Amended) An electronic device, comprising:

a silicon substrate;

electronic circuitry constructed in said silicon substrate; and

a band-gap reference circuit comprising:

a band gap reference unit comprising a plurality of transistors,

a buffer circuit, and

~~a single component voltage pull-up device that is separate from said band-gap reference unit~~ electronically coupled in said electronic device, and

a first transistor operable as an emitter follower for the emitters of said plurality of transistors, wherein the emitter of said first transistor is electrically coupled to said buffer circuit via said voltage pull-up device, wherein said first transistor and said voltage pull-up device in combination pull the VBE of said buffer circuit toward Vcc;

wherein said electronic circuitry requires reference to the output voltage of said band-gap reference circuit ~~and said band-gap reference circuit is enabled for low impedance by said buffer circuit,~~ wherein said buffer circuit comprises a second transistor, and wherein said ~~single component~~ voltage pull-up device is coupled between said band-gap reference unit and said buffer circuit.

8. (Original) An electronic device as described in Claim 7, wherein said electronic device is an integrated circuit device.

9-11. (Canceled).

12. (Original) An electronic device as described in Claim 7, wherein said band-gap reference circuit is enabled for low supply voltage.

13. (Original) An electronic device as described in Claim 12, wherein said band-gap reference circuit is enabled for said low supply voltage by a voltage pull-up device.

14-15. (Canceled).

16. (Currently Amended) In an electronic device, a method for providing a reference voltage, comprising:

flowing current through an electronic element such that the band-gap voltage of said electronic element provides said reference voltage, said electronic element comprising a plurality of transistors;

providing a buffer circuit and a band gap voltage reference unit coupled to said buffer circuit; and

adjusting the voltage across said buffer circuit, by use of a ~~single component~~ voltage pull-up device in combination with a first transistor to pull the VBE of said buffer circuit toward Vcc, wherein said voltage pull-up device is that is separate from said band-gap reference unit coupled between said buffer circuit and said band gap voltage reference unit, so that said band-gap reference voltage is maintained, wherein said first transistor is coupled as an emitter follower for the emitters of said plurality of transistors, and wherein the emitter of said first transistor is electrically coupled to said buffer circuit via said voltage pull-up device.

17. (Original) A method as described in Claim 16, wherein said electronic device is an integrated circuit device.

18. (Original) A method as described in Claim 16, wherein said buffer circuit is implemented as a transistor circuit.

19. (Original) A method as described in Claim 18, wherein said transistor circuit is connected as an emitter follower.

20. (Original) A method as described in Claim 16, wherein said band-gap reference circuit is enabled for low supply voltage.

21. (Previously Presented) A method as described in Claim 20, wherein said band-gap reference circuit is enabled for said low supply voltage by a voltage pull-up device coupled between said buffer circuit and a band gap reference unit.

22. (Canceled).

23. (Previously Presented) A method as described in Claim 21, wherein said band gap reference voltage is provided by current through a transistor with a VBE of less than 1.0 volts.